

REMARKS

By this reply, Applicant has amended independent claims 1, 29, and 35, amended dependent claims 25, 33, and 34, and cancelled claim 5 without prejudice or disclaimer. In view of the amendments, claims 1-3, 6-22, and 25-35 remain pending in this application, with claims 10-22 withdrawn. The originally filed application fully supports the claim amendments. The amendments to claims 1, 29, and 35 have written support at least in paragraph [0023], and Figure 2 of the specification, and do not constitute new matter. Applicant requests reconsideration and allowance of this application.

Applicant respectfully traverses the 35 U.S.C. § 103(a) rejections of claims 1-3, 5, 6, 8, 9, and 25-35 over U.S. Patent 4,521,498 to Juergens in view of U.S. Patent 6,287,719 to Bailey; claims 1-3, 5, 6, 8, 9, and 25-35 over Juergens in view of Bailey and U.S. Patent 6,265,098 to Audit; claims 1-3, 5, 6, 8, 9, and 25-35 over Juergens in view of Bailey and U.S. Patent Publication 2003/0148178 to Kaneta; claim 7 over Juergens in view of Bailey and U.S. Patent 6,312,848 to Kilb; and claim 7 over Juergens in view of Bailey and Audit, and further in view of Kilb.

The Office Action asserts that in view of Juergens and Bailey, “[s]tacking the spiral wound batteries on top of each other so that they are aligned axially along a generally cylindrical core is well known and would be obvious to one skilled in the art.” Office Action, page 4. While Applicant disagrees with this assertion, Applicant has amended the claims to clarify patentable features of the claimed secondary battery.

As recited, e.g., in amended claims 1, 29, and 35, a battery comprises, among other elements, “an integral hollow shaft,” and “cells aligned axially along the integral hollow shaft.” Juergens, in contrast, discloses an intercell connection for batteries,

having multiple spirally wound cell packs with positive and negative windings, wherein the electrodes have tabs that extend out to connect to the adjacent cell via collector tabs of opposite polarity. See Juergens, Figures 1 and 3. Juergens does not disclose or suggest having an “integral hollow shaft” and “cells aligned axially along the integral hollow shaft” as recited, e.g., in claims 1, 29, and 35.

Bailey does not remedy the deficiencies of Juergens. The Office Action asserts at page 4, lines 3-4 that the core of Bailey is “hollow and therefore is configured to route a cooling fluid there through.” Contrary to the assertion in the Office Action, Bailey does not discuss using a cooling fluid. In contrast, Bailey discloses a battery designed and manufactured so that there is no excess liquid in the battery. Bailey, col. 8, lines 45-59. Bailey, moreover, discloses a pair of battery cells that are part of a spiral-wound electrode assembly having an open center. See Bailey, Figure 3. Bailey discloses insertion of a core pin into the middle of the spiral-wound electrode cell in order to decrease the likelihood of an internal short circuit if the battery housing is crushed, but Bailey does not disclose or suggest having an “integral hollow shaft” and “cells aligned axially along the integral hollow shaft,” as recited, e.g., in claims 1, 29, and 35. Bailey, col. 3, lines 28-47, and Figures 2 and 3. Thus, Bailey does not add the features of the claims missing from Juergens. Accordingly, the combination of Juergens and Bailey does not create a *prima facie* case of obviousness. M.P.E.P §2143 (a).

Audit also does not remedy the deficiencies of Juergens and Bailey. Audit neither discloses nor suggests having an “integral hollow shaft” and “cells aligned axially along the integral hollow shaft” as recited, e.g., in claims 1, 29, and 35. Audit, in contrast, discloses an electric storage device including a plurality of energy cells. Each

cell is created by a winding 44 of an anode plate 48, a cathode plate 46, and a separator 50. A hole 60 passes through the winding 44 as a result of being wound around an arbor during manufacture. Audit, col. 9, lines 30-39. Two current collectors 68 are pressed against the sides of the winding 44 to contact the respective plate edges. The cathode plate 46 and anode plate 48 are wound offset to allow each current collector 68 to make direct electrical contact with a single plate without the need for tabs connecting the plates and collectors. Audit, col. 11, lines 29-40. Conductor rods 72 may be provided to extend from the current collectors 68 for transmitting energy. Audit, col. 13, lines 20-25. Each winding 44 is made individually, but may be contained in a device 100 including a single casing 102 holding a plurality of windings 44. Audit, Figures 8-10. The conductor rods 72 are used in the single casing 102 to allow for the conductor rods 72 of adjacent windings 44 to contact. Audit, col. 15, lines 38-50. Audit does not even discuss using an integral generally hollow shaft in the battery. Based on this, one of ordinary skill in the art would not modify Juergens and Bailey to be aligned axially or to use an integral generally hollow shaft.

The Office Action asserts at page 5, lines 12 et seq., that Audit teaches stacking cylindrical batteries, electrically connected together. Certainly, stacking separate cylindrical batteries, such as those taught in Audit and Bailey, each with its own individual separate shaft is known, but separate stacked cylindrical batteries, each with its own individual shaft, does not disclose or suggest a battery with an integral hollow shaft with electrodes disposed concentrically around the integral hollow shaft. By teaching separate cylindrical batteries with individual separate shafts, Audit teaches away from using an integral hollow shaft and cells aligned axially along the integral

hollow shaft as recited, e.g., in claims 1, 29, and 35. Accordingly, the combination of Juergens, Bailey, and Audit does not create a *prima facie* case of obviousness.

M.P.E.P §2143 (a).

Kaneta also does not remedy the deficiencies of Juergens and Bailey. Kaneta, in contrast, discloses configurations for connecting stacked flat-type battery cells. Kaneta, paragraph [0010]. Thus Kaneta also does not disclose or suggest an “integral hollow shaft” and “cells aligned axially along the integral hollow shaft” as recited in the claims. Accordingly, the combination of Juergens, Bailey, and Kaneta does not create a *prima facie* case of obviousness. M.P.E.P §2143 (a).

Kilb also does not disclose or suggest having an “integral hollow shaft” and “cells aligned axially along the integral hollow shaft,” so no combination of Juergens, Bailey, Audit, Kaneta, or Kilb, establishes a *prima facie* case of obviousness under § 103(a). M.P.E.P. § 2141.

In the April 2, 2009 Advisory Action, the Examiner alleged that the term “generally” hollow seems indefinite. Applicant traverses this statement. The term “generally” has a well-known meaning in U.S. patent claiming practice. Nevertheless, solely in order to move this case forward to allowance, Applicant has amended the language slightly to read “integral hollow shaft.”


In view of the above amendments and remarks, Applicant requests reconsideration and allowance of the claims pending in this application.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: April 20, 2009

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